KAMAY, GIL'M
USSR/Chemistry

Card 1/1

Authors : Kamay, Gil'm; and Khisamova, Z. L.

Title : Reaction of cyclic arsenyl chlorides with dialkylamines

Periodical : Zhur. Ob. Khim. 24, Ed. 5, 821 - 824, May 1954

Abstract : The reaction of cyclic arsenyl chlorides with dialkylamines was investigated. The first products were dialkyl substituted amides of cyclic esters of arsenous acid (cyclic arsenates). The bond $>As-N<$ in these compounds is very unstable and breaks under the effect of alkyl halide, atmospheric oxygen and water. The products of oxidation of dialkylamido esters of arsenous acid are cyclic esters of pyroarsenous acid. One USSR reference. Tables.

Institution : Acad. Scs. USSR, Kazan Branch, The A. E. Arbuzov Chemical Institute

Submitted : December 26, 1953

KAMAY, GIL'M

7

USSR

Polymerization of some unsaturated esters of phosphonecarboxylic acids. Gil'm Kamai and V. A. Kukhtin. (S. M. Kirov Chem.-Technol. Inst., Kazan). *Zhur. Obshchei Khim.* 24, 1835-9(1954).—It was previously shown that allyl esters of $AcPO_2H_2$ and $BzPO_2H_2$ polymerize on heating to gel-like polymers, while copolymerization with $CH_2:CMeCO_2Me$ yields flame resistant copolymers [cf. *Trudy Kazan. Khim.-Tekhnol. Inst.*, 16, 29(1952); C.A. 48, 7540g]. It is now shown that monoallyl esters of $HO_2CCH_2PO_2R_2$ are but slightly polymerized even with addn. of Bz_2O_2. Copolymers of the monoallyl esters with $CH_2:CMeCO_2Me$ are hard transparent resins with low thermal stability and those contg. 15-29% P-bearing component are self-extinguishing after ignition. Phosphonoacetates with 2 allyl ester groups readily polymerize to gels which are insol. in org. solvents; copolymers with $CH_2:CMeCO_2Me$ show flame resistance; generally increase of P content of the copolymer leads to reduced hardness and thermal stability of the polymer; the copolymers are sparingly sol. in Me_2CO. The triallyl ester heated with Bz_2O_2 in air rapidly turns red and does not polymerize; under N the color change is slow but polymerization still does not take place. Shullar is vinyl diallyl ester; vinyl di-Et ester does polymerize to low mol. wt. sirup. Heating 62 g. $(MeO)_3P$ and 67 g. $ClCH_2CO_2CH_2CH:CH_2$ (I) 4 hrs.

(OVER)

Translation B-83649, 21 Mar 55

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GILM KAMAI

at 110-20° gave 86% MeCl and 22.5 g. $(MeO)_2P(O)CH_2CO_2CH_2CH{:}CH_2$, b_1 114–14.5°, n_D^{25} 1.4505, d_4^{25} 1.2064. To $(EtO)_2PONa$, from 5.3 g. Na and 31 g. $(EtO)_2POH$ in dry Et_2O, was added 39 g. I; after refluxing 1 hr. there was obtained 55% $(EtO)_2PO\,CH_2CO_2CH_2CH{:}CH_2$, b_{10} 157–8°, n_D^{25} 1.4426, d_4^{25} 1.1203; similarly was prepd. the *di-iso-Pr ester*, b_3 152–3°, n_D^{25} 1.4357, d_4^{25} 1.0520. The following esters were prepd. by the 1st method (yields not cited): $(BuO)_2P(O)CH_2CO_2CH_2CH{:}CH_2$, b_1 140–7.5°, n_D^{25} 1.4470, d_4^{25} 1.0492; *di-iso-Bu ester*, b_1 154–6°, n_D^{25} 1.4438, d_4^{25} 1.0356; $(CH_2{:}CHCH_2O)_2P(O)CH_2CO_2Me$, b_1 128–9°, n_D^{25} 1.4578, d_4^{25} 1.1478; *Et ester*, b_3 133–4°, n_D^{25} 1.4521, d_4^{25} 1.1180; *iso-Pr ester*, b_1 150–1°, n_D^{25} 1.4545, d_4^{25} 1.0983; *iso-Bu ester*, b_1 130–1°, n_D^{25} 1.4560, d_4^{25} 1.0850; *Bu ester*, $b_{0.3}$ 142–3°, n_D^{25} 1.4552, d_4^{25} 1.0801; $(CH_2{:}CHCH_2O)_2P(O)CH_2CO_2CH_2CH{:}CH_2$, b_3 165–6°, n_D^{25} 1.4711, d_4^{25} 1.0967; $(CH_2{:}CHCH_2O)_2P(O)CH_2CO_2CH{:}CH_2$, b_2 107–8°, n_D^{25} 1.4576, d_4^{25} 1.0512; $(EtO)_2P(O)CH_2CO_2CH{:}CH_2$, $b_{0.5}$ 103–4°, n_D^{25} 1.4340, d_4^{25} 1.1100; $(CH_2{:}CHCH_2O)_2P(O)CO_2Et$, b_1 126–7°, n_D^{25} 1.4490, d_4^{25} 1.1204. The polymerizations were run under N in the presence of 1% Bz_2O_2 at 70°. Copolymerizations were run in the presence of 0.3% Bz_2O_2 at 50–5°. The esters with 1 allyl group that did polymerize under such conditions were those with Me, Et, and iso-Pr groups; the higher esters were unchanged even after 300 hrs. The esters with 2 allyl groups polymerized in 70–100 hrs. at 70°

G. M. Kosolapoff

KAMAY, G. and I.M.STARSHOV

"The Action of Alkyl Iodides on Esters of Phenylalkylarsenous Acids," Zhur. Obshch. Khim., 24, pp 2044-49, 1954.

Trans. B-83649, 21 Mar 55

KAMAY, Gil'm

USSR/Chemistry

Card : 1/1

Authors : Kamay Gil'm, and Starshov, I. M.

Title : Atomic arsenic refraction in certain organic As-containing compounds

Periodical : Dokl. AN SSSR, 96, Ed. 5, 995 - 997, June 1954

Abstract : The atomic refraction of pentavalent arsenic, as an analogue of phosphorus, and of arsenic within the confines of one class of As-containing compounds is described. By substituting the alkoxy group bond with the arsenic atom with a hydrocarbon group the value of the atomic constant of the arsenic has increased. The atomic refraction of arsenic in oxides of secondary arsines and esters of arylalkylarsenous acids (arylalkylarsenates) remains constant within certain error limits. Eight references. Tables.

Institution : The S. M. Kirov Chem-Technological Institute, Kazan

Presented by : Academician, A. E. Arbuzov, March 15, 1954

KAMAY, Gilm

6002

M. A. YOUTZ
1 copies

(2)

√ Polymerization of allyl esters of alkyl(aryl)phosphonic acids. Gilm Kamai and V. A. Kukhtin (S. M. Kirov Chem. Technol. Inst., Kazan'). *Zhur. Obshchei Khim.* 25, 1932–6(1955); cf. *Trudy Kazan. Khim. Tekhnol. Inst.* 16, 20(1948); *C.A.* 49, 13072g.—To 40 g. CH_2:$CHCH_2OH$, 54 g. pyridine, and 300 ml. Et_2O was added with cooling 60 g. $PhPCl_2$; after filtration, the soln. was distd., yielding 42.6% $PhP(OCH_2CH:CH_2)_2$, b. 116–17°, d_4^{20} 1.0620, d_4^{20} 1.0413, n_D^{20} 1.5240, and 13.3% isomerized ester, $PhP(O)(CH_2CH:CH_2)OCH_2CH:CH_2$, b_4 131–2°, d_4^{20} 1.0071, n_D^{20} 1.5260. Heating the former (20 g.) with 10 g. CH_2:$CHCH_2Br$ to 80° initiated the isomerization, completed in 2 hrs. at 100–10°, yielding 20 g. of the latter ester, b_4 131–2°, d_4^{20} 1.0980, n_D^{20} 1.5280. Similarly were obtained: $PhMeP(O)OCH_2CH:CH_2$, b. 112–13°, n_D^{20} 1.5208, d_4^{20} 1.1110, and $PhEtP(O)OCH_2CH:CH_2$, b_4 124–5°, 1.5155, 1.0854. *p*-$ClC_6H_4PCl_2$ with CH_2:$CHCH_2OH$ in the presence of pyridine similarly gave 60.5% *p*-$ClC_6H_4P(OCH_2CH:CH_2)_2$, b. 126–7°, 1.5370, 1.1490, and 10% *p*-$ClC_6H_4P(O)(CH_2CH:CH_2)OCH_2CH:CH_2$, b_4 148–9°, 1.5338, 1.1203; the latter is formed readily from the former by heating with allyl bromide. Similar reaction with MeI gave *p*-$ClC_6H_4PMe(O)OCH_2CH:CH_2$, b_2 129–30°, 1.5308, 1.1960. Polymerization of $RArP(O)OCH_2CH:CH_2$ was done at 70° with 1% Bz_2O_2, for 60–100 hrs. The Ph deriv. polymerized in 60 hrs. and the *p*-chlorophenyl in 100 hrs., provided the R was allyl; all others failed to polymerize even after 200 hrs. G. M. K.

PM

USSR/Chemistry - Reaction processes

Card 1/1 Pub. 22 - 24/59

Authors : Kamay, Gil'm, and Kukhtin, V. A.

Title : Reaction of acetic anhydride with trialkylphosphites

Periodical : Dok. AN SSSR 102/2, 283-285, May 11, 1955

Abstract : It was established experimentally that the reaction between acetic anhydride and trialkylphosphites occurs at a temperature of 130-140°. The products derived from this reaction and their phys.-chem. properties are described. It is assumed that the investigated reaction is also common for other acid anhydrides. Seven Russ. and USSR references (1914-1954).

Institution : Kazan' Chemicotechnological Inst. im. S. M. Kirov

Presented by: Academician A. Ye. Arbuzov, December 27, 1954

KAMAY, G.

USSR/Organic Chemistry - Synthetic Organic Chemistry, E-2

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 61605

Author: Kamay, G.

Institution: None

Title: Synthesis and Study of the Properties of Esters of the Acids of Trivalent Arsenic

Original Periodical: Uch. zap. Kazansk. gos. un-ta, 1955, 115, No 10, 43-45

Abstract: Prepared for the first time were the following esters of arsenous acids: $(RO)_3As$(I); $ArAs(OR)_2$(II); $AlkAs(OR)_2$(III); Ar_2AsOR(IV); $Ar(Alk)AsOR$(V); wherein R = CH_3; C_2H_5; n-C_3H_7; iso-C_3H_7; n-C_4H_9; iso-C_4H_9; n-C_6H_{13}; Ar = C_6H_5; C_7H_7; Alk = CH_3; C_2H_5; iso-C_3H_7; n-C_4H_9; iso-C_4H_9. I are not isomerized on heating with alkyl halides. II, IV and V react with Cu_2X_2 and $HgCl_2$. $C_6H_5(Alk)AsOR$ on interaction with alkyl iodide from arsonium iodides which are converted by the action of HNO_3 to nitrates. Studied was the reaction of $AsCl_3$ with α- and β-glycols in the presence of C_5H_5N

Card 1/2

KAMAY, G. and KUSTIN, V.A.

"Reaction of Trialkl Phosphites with Some Organic Acids and Anhydrides"
paper presented at 4th First Conference on Phosphorous Compounds, Kazan, 8-10 Dec 56

Ref: B-3,084,841

KAMAY, Gil'm; KUKHTIN, V.A. (Kazan')

Tautomerism of diethylphosphorous acid. Trudy KKHTI no.21:147-154 '56. (MIRA 12:11)

(Phosphorous acid) (Tautomerism)

KAMAY, Gil'm; STARSHOV, I.M. (Kazan')

Production of phenyldialkylalkozyarsonium nitrates. Trudy KKHTI no.21:159-161 '56. (MIRA 12:11)

(Arsonium compounds)

KAMAY G

USSR/Organic Chemistry - Synthetic Organic Chemistry, E-2

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 961

Author: Kamay, G., and Khisamova, Z. I.

Institution: None

Title: Action of Acetyl Chloride and Acetic Anhydride on the Alkyl Esters of Arsenic Acid

Original Periodical: Zh. obshch. khimii, 1956, Vol 26, No 2, 411-416

Abstract: It is shown that $(RO)_2AsOR'$ (I) and $(RO)_3As$ (II) react exothermally with cold CH_3COCl to form acid chlorides of dialkyl arsenic acid $(RO)_2AsCl$ (III) and $(RO)As(OR')Cl$ (IV). II reacts with $(CH_3CO)_2O$ on heating, forming mixed anhydrides of dialkyl arsenic acid $(RO)_2AsOCOCH_3$ (V). II is prepared by heating As_2O_3 with the corresponding alcohol; the following compounds II have been prepared (the nature of R, bp in ° C/mm, n_D^{20}, and d_4^{20} are indicated in that order): C_3H_7, 97-98/13, 1.4391, 1.1132; iso-C_4H_9, 116-117/12, 1.4390, 1.0568; n-C_4H_9, 109/4, 1.4428, 1.0683; n-C_6H_{13}, 159/2,

Card 1/3

USSR/Organic Chemistry - Synthetic Organic Chemistry, E-2

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 961

Abstract: 1.4502, 1.0119. The following compounds I have been prepared by reacting ROH with $R'OAsCl_2$ in the presence of anhydrous pyridine in ether (R, R', bp in ° C/mm, n_D^{20}, and d_4^{20} are indicated in that order): C_2H_5, C_3H_7, 92-93/19, 1.4423, 1.1325; C_2H_5, C_4H_9, 110-113/9, 1.4542, 1.1262; C_3H_7, C_4H_9, 112-112.5/14, 1.4438, 1.0930. Twenty grams of II (R = C_3H_7) are mixed with 6.2 gms CH_3OCl in an Arbuzov distillation flask. The mixture is heated to 110° for 30 minutes; the following fractions are collected on distillation: up to 50°/13 mm, 16.5 gms of propyl acetate, and up to 73-75°/10 mm, 13.8 gms III (R = C_3H_7), n_D^{20} 1.4683, d_4^{20} 1.2447. A similar method was used in preparing the following II and IV (characteristics as above): III -- C_3H_7, 73-75/10, 1.4683, 1.2447; C_4H_9, 110-112/10, 1.4569, 1.2401; iso-C_4H_9, 108-111/25, 1.4639, 1.2276; n-C_6H_{13}, 140-143/2, 1.4642, 1.0960; IV -- C_2H_5, C_3H_7, 72-73/10, 1.4672, 1.2987; C_3H_7, C_4H_9, 96-96.5/14, 1.4630, 1.2280; III is easily saponified in water: $2(RO)_2AsCl + 3H_2O \rightarrow As_2O_3 + 4ROH + 2HCl$; reaction with alcohols in anhydrous pyridine yields I. Twenty grams of II (R = C_4H_9) are heated with 6.8 gms $(CH_3CO)_2O$ over an oil bath (7 hours at 140-146°). Distillation yields the following fractions: up to 30°/20 mm, mainly $CH_3COOC_4H_9$, and at 125-126°/10 mm 14.2 gms V (R = C_4H_9),

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Card 3/3

Kamay, Gil'm

USSR/Organic Chemistry. Synthetic Organic Chemistry. E-2

Abs Jour: Ref Zhur - Khimiya, No. 8, 1957, 26898.

Author : Kamay, Gil'm; Chadayeva, N.A.
Inst :
Title : Cyclic Esters of Ethylarsinic Acid.

Orig Pub: Zh. obshch. khimii, 1956, 26, No. 9, 2466 - 2474.

Abstract: The preparation of cyclic esters $C_2H_5AsOR_2O$ (I) by the interaction of C_2H_5AsO (II) with glycols at raised temperature in vacuum is described. Following esters were prepared (R, yield in %, boiling point in °C/mm, $n^{20}D$ and d_4^{20} are enumerated): CH_2CH_2, 78.5, 62/10, 1.5230, 1.5423; CH_2CHCH_3 (Is), 63.8, 52 to 53/10, 1.4929, 1.3859;

Card 1/4

Abs Jour: Ref Zhur - Khimiya, No. 8, 1957, 26898.

$CH_2CHCH_2OCH_3$, 79.5, 90/10, 1.4880, 1.3664; $C_2H_5OCH_2CHCH_2$ (Ib), 55.3, 99/10, 1.4863, 1.3167; $C_3H_7OCH_2CHCH_2$ (Ic), 74.3, 114/11, 1.4818, 1.2602; $C_4H_9OCH_2CHCH_2$ (Id), 82, 125 to 125/10, 1.4805, 1.2402; $(CH_2)_3$, 57.5, 74 to 75/10, 1.5212, 1.4436; $CH_2CH_2OCH_2CH_2$, 55, 90/10, 1.5010, 1.4070; o-C_6H_4(Ie), 125/13, - , - , melting point 49 to 50°. Reduced contents of As were received at the analysis of I-s, with the exception of Ib and Id, which seems to be connected with admixtures forming in consequence of intermediate dehydration of glycols under the influence of II. As_2O_3 is liberated at the hydrolysis of I. $C_2H_5AsCl_2$ and $CH_3COO-\overset{\times}{C}-C-OCOCH_3$ are forming at the reaction of I with CH_3COCl and $(CH_3CO)_2O$. Ib with CH_3I produces a substance close to

Kamay, G; L. A. Khismatullina

"[illegible] the Preparation of Asymetric Phosphonium Compounds Having Different Aliphatic Radicals," by Gil'm Kamay and L. A. Khismatullina, Chemical Institute, Kazan Affiliate, Academy of Sciences USSR, Zhurnal Obshchey Khimii, Vol 26, No 12, Dec 56, pp 3426-3430

The authors prepared and studied the properties of some new representatives of phosphines and phosphonium salts. They synthesized for the first time ethyl-n-butylbenzylallylphosphonium bromide. This is a phosphonium compound having different alkyl radicals. Attempts to separate it into optically active components were unsuccessful.

Sum - 1287

Kamay, Gil'm

"Concerning the Addition Reaction of Trialkylphosphites to Certain Unsaturated Acids," by Gil'm Kamay and V. A. Kukhtin, Kazan Chemicotechnological Institute imeni S. M. Kirov, Doklady Akademii Nauk SSSR Vol 109, No 1, Jul 56, pp 91-93

The article discusses previous work and introduces analytical data supporting the existence of an addition mechanism of trialkylphosphites to unsaturated acids to form complete esters of the corresponding beta-phosphoncarboxylic acids. Another possible mechanism for this reaction, i.e., preliminary re-esterification of the components with the formation of dialkylphosphorous acid and an ester of an unsaturated acid, does not seem probable in view of the fact that under these conditions dialkylphosphorous acid does not add to acrylic acid without a catalyst.

This addition reaction of trialkylphosphites to unsaturated acids broadens the existing methods of preparing esters of phosphonic acids. (U)

Sum. 1325

KAMAY, GIL'M.; CHADAYEVA, N.A

Action of halogen anhydrideds and acetic anhydride on the glycol ethers of phenylarsinic acid. Dokl. AN SSSR 109 no.2:309-311 Jl'56. (MLRA 9:10)

1. Khimicheskiy institut imeni A.Ye. Arbuzova Kazanskogo filiala Akademii nauk SSSR. Predstavlono akademikom A.Ye. Arbuzovym.
(Anhydrides) (Arsinous acid)

KAMAY, G., and KUNITIN, V. A.

"Copolymerization of a few unsaturated esters of phosphoric acid," a paper presented at the 9th Congress on the Chemistry and Physics of High Polymers, 28 Jan-2 Feb 57, Moscow, Kazan University

B-3,084,395

[redacted], A., and [redacted], V. A.; S. M. Kirov Chemical Technological Institute

"Reaction of Trialkyl Phosphites with Some Organic Acids and Their Anhydrides," Khimiya i Primenenie Fosfororganicheskikh Soedinenii (Chemistry and Applications of Organophosphorous Compounds), pp. 91-8, 1957.

B-3,089,815; Full translation

KAMAY, Gil'm; KUKHTIN, V. A. (Kazan Chemical Technological Inst. Im. S. M. Kirov)

"On the reaction of Tryalkylphosphites with Some Organic Acids and Their Anhydrides"
(O bzaimodeystvii trialkilfosfitov s nekotorymi organicheskimi kislotami i ikh angidridami)

Chemistry and Uses of Organophosphorous Compounds
(Khimiya i primeneniye fosfororganicheskikh soyedneniy),
Trudy of First Conference, 8-10 December 1955, Kazan,
pp. Published by Kazan Affil. AS USSR, 1957
91-98

Report discussed by B. A. Arbuzov (Chem. Inst. im. Acad. A. Ye. Arbuzov, Kazan Aff. AS USSR) and M. I. Kabachnik (Inst. Elem. Organ. Compounds AS USSR, Moscow)

KAMAY, G[illegible]m; CHADAYEVA, N.A.

Preparation and properties of some esters of ethylthioarsinous acid. Izv.Kazan.fil.AN. SSSR.Ser.Khim.nauk no.4:69-77 '57. (MIRA 12:5)

(Thioarsinous acids)

KAMAY, Gil'm; KHISMATULLINA, L.A.

Preparation of new asymmetric phosphines. Izv.Kazan.fil.AN SSSR.Ser.khim.nauk no.4:79-82 '57. (MIRA 12:5)
(Phosphine)

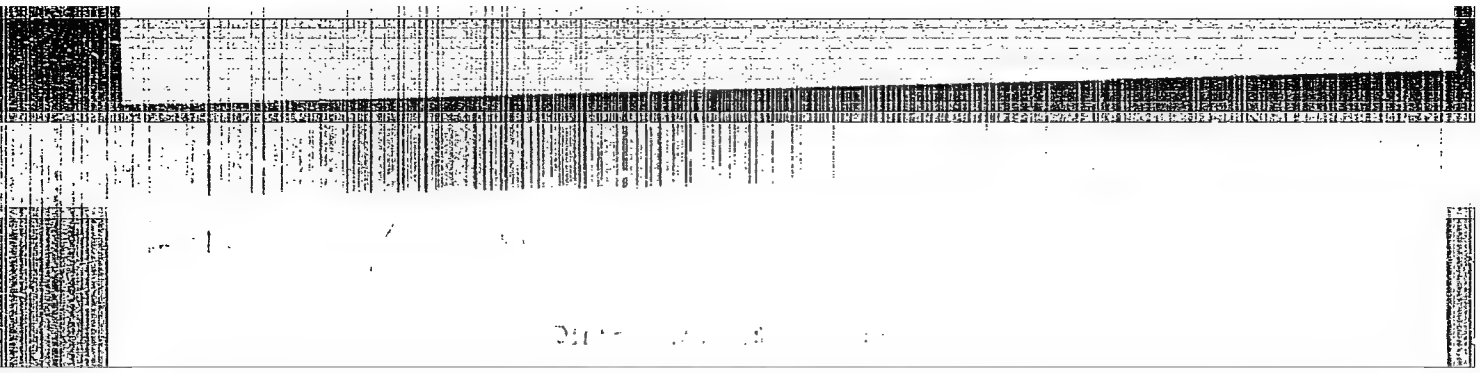
KAMAY, G. Kh.

"On Syntheses of Certain Unsaturated Ethers of Phosphinous Acids."

Inter-vuz Scientific Conference (Mezhvuzovskiye nauchnyye Konferentsii)

Vestnik Vysshey Shkoly, 1957 , # 9, pp 73 - 76 (USSR)

Abst: In January 1957, the Second All-Union Conference on Photosynthesis took place, organized by the Instiutute of Plant Physiology of the Acadey of Sciences, USSR, and by the Faculty of Soil-Biology of the Moskva University. About 700 representatives of 130 Scientific-research institutes, vuzes and ministries were present. The indroductory report was made by Academician A. L. Kursanov who described the development of photosynthesis during the last ten years and invited the scientists to concentrate therir work on the application of radioactive and stable isotopes. Nearly 100 reports were read: 13 on photochemistry, 9 on the investigation of chloroplast structure, 19 on the investigation of pigments, 9 on the photosynthesis of water plants, bacteria, etc.



APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620220015-3"

KAMAY, G. KH.

USSR/General Topics - Methodology, History, Scientific Institutions and Conferences, Instruction, Problems Concerning Bibliography and Scientific Documentation. A-1

Abs Jour : Referat Zhur - Khimiya, No 1, 1958, 11.

Author : G.Kh. Kamay.

Inst : Academy of Sciences of USSR, Kazan Branch; Chemical Scientific Research Institute of Kazan University.

Title : Prominent Soviet Chemist (To The 80th Anniversary of the Birthday of Academician A.Ye. Arbuzov).

Orig Pub : Vest. AN SSSR, 1957, 27, No 9, 46-52

Abstract : Abridged sketch of the scientific activity of A.Ye. Arbuzov (born 1877), well known organic chemist (Kazan Branch of Academy of Sciences of USSR; Chemical Scientific Research Institute of Kazan University).

Card 1/1

KAMAY, Gil'm; KUKHTIN, V.A.

Addition of phosphorus and phosphinous acid esters to conjugated systems. Part 1: Addition of trialkyl phosphite to acrylic and metacrylic acids. Zhur. ob. khim. 27 no.9:2372-2376 S '57. (MIRA 11:3)

1.Kazanskiy khimiko-tekhnologicheskiy institut.
(Phosphorous acid) (Acrylic acid)

KAMAY, Gil'm; KUKHTIN, V.A.

Addition of phosphorus and phosphinous acid esters to conjugated systems. Part 2: Addition of trialkylphosphites to acrolein and crotonaldehyde. Zhur. ob. khim. 27 no.9:2376-2380 S '57. (MIRA 11:3)

1.Kazanskiy khimiko-tekhnologicheskiy institut.
(Phosphorous acid)
(Acrolein)
(Crotonaldehyde)

79-11-32/56

AUTHORS: Kamay, Gil'm; Kharrasova, F. M.

TITLE: Concerning the Problem of Interaction Between the Alkylesters of Trichloromethylphosphinic Acid and the Alkylamines (K voprosu o vzaimodeystvii alkil'nykh efirov trikhlormetilfosfinovoy kisloty s alkilaminami).

PERIODICAL: Zhurnal Obshchey Khimii, 1957, Vol. 27, Nr 11, pp. 3064-3067, (USSR)

ABSTRACT: In connection with the papers by Atherton, Openshow and Todd it was of interest for the authors first to investigate the reaction of dialkylphosphites with secondary amines in the presence of carbon tetrachloride. The action of dimethyl- and diethylamines upon dialkylphosphites led to the corresponding dialkylamidophosphates of whom four were first synthesized. It was not possible to produce diphenylamidophosphates. The replacement of carbon tetrachloride by the bromine compound gives a highly energetic reaction, with formation of dialkylamidophosphates and the hydrogen bromide salt of dialkylamine, where the phosphates, however, are polluted by bromoform and carbon tetrabromide. Further the authors attempted the reaction of trichloromethylphosphinic ester with some

Card 1/2

Concerning the Problem of Interaction Between the Alkyl- 79-11-12/56
esters of Trichloromethylphosphinic Acid and the
Alkylamines

secondary amines. The dimethylester of trichloromethylphosphinic acid reacts with diethylamine with formation of the monodiethylaminosalt of trichloromethylphosphinic acid. The ethyl- and isopropyl-ester of trichloromethylphosphinic acid react with diethylamine with formation of an ester-salt

$$C\,Cl_3P(O)\,(OR)\,(OH).NH(C_2H_5)_2$$

Thus it was determined that the reaction of trichloromethylphosphinic ester with dialkylamines is not accompanied by a splitting up of the Cl_3C-P-bond and does not yield any phosphated but ester-salts.
There are 1 table, and 10 references, 3 of which are Slavic.

ASSOCIATION: Kazan' Chemical-Technological Institute (Kazanskiy khimiko - tekhnologicheskiy institut)

SUBMITTED: November 9, 1956

Card 2/2

1. Alkylesters - Chemical reactions
2. Alkylamines - Chemical reactions
3. Trichloromethylphosphinic acids - Derivatives

KAMAY, G.

"Addition of Trialkylphosphites to alpha,beta-Unsaturated Aldehydes," by Gil'm Kamay and V. A. Kukhtin, Kazan' Chemico-technological Institute imeni S. M. Kirov, Doklady Akademii Nauk SSSR, Vol 112, No 5, 1957, pp 868-871

The authors investigated the mechanism and conditions for the addition of trialkylphosphites to unsaturated aldehydes. Addition was found to take place at the 1-4 positions. Evidence is presented attesting to the formation of an intermediate product which helps to explain the mechanism of the reaction, which is proposed to take place in two stages according to the Arbuzov rearrangement. (U)

Sum. 1360

KAMAY, Gil'm

20-2-30/62

AUTHOR GIL'M KAMAY, and CHADAYEVA, N.A.

TITLE On Alkyl Ethers of Ethylthioarsinous Acid
(Ob alkil'nykh efirakh etiltioarsinistoy kisloty. Russian)

PERIODICAL Doklady Akademii Nauk SSSR, 1957, Vol 115, Nr 2, pp 306-307 (U.S.S.R.)

ABSTRACT

The ethers of thioarsinous, alkyl and arylthioarsinous acids were little investigated. In patent publications some ethers of the latter acids were described as therapeutically active substances. The here described synthetizised ethers have a general formula $C_2H_5As(SR)_2$. In their studies the authors above all occupied themselves with the direct interaction of ethyldichlorarsine with the corrsponding mercaptans. Ethyl, n-propyl, n-butyl and isoamyl ethers were produced. Ethyldichloroarsine was dropwise added to mercaptan. Ethyl, n-butyl and n-hexyl ethers of the same acid were produced by a second method, namely interaction of both substances in an ether medium in the presence of anhydrous pyridine. Ethyl ether of the acid was obtained on a third way:

$$2C_2H_5SNa + C_2H_5AsCl_2 \longrightarrow C_2H_5As(SC_2H_5)_2 + 2NaCl.$$

The constants of these ethers are given in tab. 1. Their properties are described. The hydrolysis of these ethers in the cold and at normal temperature takes place comparatively slowly. If they are let standing in the air, a white precipitation forms. By heating n-butyl ether with water the authors isolated ethylarsinous acid. Its formation is illu-

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KAMAY, Gil'm

20-6-20/42

AUTHORS: Gil'm Kamay, Kuznetsov, Ye. V., and Valetdinov, R. K.

TITLE: Cyan Substituted Dialkylphosphates (O tsianzameshchennykh dialkilfosfitakh)

PERIODICAL: Doklady AN SSSR, 1957, Vol. 116, Nr 6, pp. 965 - 968 (USSR)

ABSTRACT: Hitherto the cyanic substitutes of the ether of the phosphorous acid have not been described. Because the introduction of the cyanogen group into the molecule of the dialkylphosphite must strongly modify its properties, the authors studied the interaction reaction of equimolar quantities of some α-cyanhydrines with phosphorus-trichloride. Thereby it has been stated that this reaction passes on formation of a mixture of products, and so of chloranhydrides of the α-cyanalkyl- and the di-α-cyanalkylphosphorous acids as well as of tri-α-cyanalkylphosphites. A scheme of the reactions following one another is mentioned. The latter compound will not be changed into the second above-mentioned acid, in spite of difficult reaction conditions (high concentration of the reagents), although the here known regrouping of Arbuzov could be expected. By the aid of manifold fractioned destillations altogether 21 α-cyanogen substituted phosphites and their chloranhydrides have been isolated from the mixture of reactions (table 1). They

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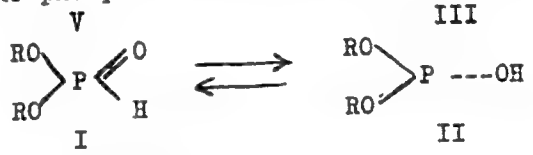
Cyan Substituted Dialkylphosphates

20-6-20/42

are achromatic liquids fuming in the moist air. Furthermore, the saponification reaction of the chloranhydrides of the di-α-cyan-alkylphosphorous acid has been studied under different conditions. With an exactly measured quantity of water in the etheric medium and at the presence of pyridine, this reaction leads to the formation of acid cyanogen substituted ethers of the phosphorous acid. Table 2 shows 6 of those compounds including their properties. The isolated di-α-cyanogen alkylphosphorous acide are achromatic liquids with a weak smell. They retain as derivatives of the trivalent phosphor us in difference to the not cyanogen substituted acids. Since more than a half century Arbuzov has drawn the conclusion that all mean ethers of the phosphorous acid are built up on the base of the trivalent phosphorus, meanwhile the acid itself and its acid ethers contain a pentavalent phosphorus. Already at that time Arbuzov expressed the conception about a possible existence of the phosphorous acid and its acid ethers as tautomeric forms:



I II

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Cyan Substituted Dialkylphosphates

According to Arbuzov the structure I has the free form of the acid. In solutions it may be existing in the tautomeric form. These conclusions have been brightly confirmed by the recent physical-chemical investigations (ref. 4 - 6). At the phosphites mentioned the tautomeric equilibrium seems to be removed in the direction of the trivalent phosphorus. Therefore the position of the equilibrium of the acid ethers is also dependent on the quality of the radicals (ref. 7). Furthermore, it has been stated by the authors that the di-α-cyanogen-containing radicals also show properties of the mixed ethers of the phosphorous acid. By the influence of heating-up the hydroxyl group within them is exchanged intermolecularly by a corresponding radical. But, in the case of the di-α--cyanisopropylphosphorous acid containing a tertiary radical, this practically will not be so. There are 2 tables, 7 Slavic references.

20-6-20/42

Cyan Substituted Dialkylphosphates

ASSOCIATION: Kazan' Institute of Chemical Technology im. S. M. Kirov
(Kazanskiy khimiko-tekhnologicheskiy institut im. S. M. Kirova)

PRESENTED: June 6, 1957, by B. A. Arbuzov, Academician

SUBMITTED: June 3, 1957

AVAILABLE: Library of Congress

Card 4/4

COUNTRY : RUMANIA
CATEGORY : Organic Chemistry. Synthetic Organic Chemistry

ABS. JOUR. : RZKhim., No. 1 1960, No. 1309

AUTHOR : Khisamova, Z. L.; Kamay, G.
INST. : Iasi Polytechnic Institute
TITLE : Preparation and Properties of Ethylene Glycol Ether of Arsenic Acid

ORIG. PUB. : Bul. Inst. politehn. Iasi, 1958, 4, No 1-2, 153-158

ABSTRACT : 10 g of As_2O_3 and 14.5 g of $HOCH_2CH_2OH$ (I) are heated for 30 min at 140-145° in a vacuum and $ROCH_2CH_2OR$ (II) is obtained (everywhere R = $-OCH_2CH_2OAs-$), yield 94.6%, b.p. 160-161°/2 mm, $n^{20}D$ 1.5378, d_4^{20} 1.8915. 0.5 g of $HgCl_2$ and 0.3 g of II are heated until a uniform mass is obtained and $II \cdot HgCl_2$ is separated.

CARD: 1/3

KAMAY, Gil'm

AUTHORS: Gil'm Kamay, Kukhtin, V ..

79-28-4-20/60

TITLE: The Addition of Neutral Esters of Phosphoric and Phosphinic Acids to Conjugated Systems (Prisoyedineniye polnykh efirov fosforistoy i fosfinistykh kislot k sopryazhennym sistemam). IV. The Addition of Esters of Phenylphosphinic Acid to α, β-Unsaturated Aldehydes and Acids (IV. Prisoyedineniye efirov fenilfosfinistoy kisloty k α,β-nepredel'nym al'degidam i kislotam)

PERIODICAL: Zhurnal Obshchey Khimii, 1958, Vol. 28, Nr 4, pp. 939-941 (USSR)

ABSTRACT: In the previous paper (Reference 1) the authors described the reaction between trialkylphosphites and compounds, which posses a C=C—C=O conjugation. This reaction is with respect to its mechanism analogous to the effect of halide alkyles on trialkylphosphites and can be regarded as one of the Arbuzov regroupings. It was to be expected, that the esters of phenylphosphinic acids reacting with haloid esters are more active than trialkylphosphites, and that they will ea-

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The Addition of Neutral Esters of Phosphoric and Phosphinic Acids to Conjugated Systems. IV. The Addition of Esters of Phenylphosphinic Acid to α, β-Unsaturated Aldehydes and Acids

79-28-4-2o/6o

sily react with conjugated systems. As was shown by the experiments conducted by the authors, phenylphosphinic esters actually react very actively with α, β-unsaturated aldehydes and acids. In this case the reaction proceeds much more energetically. Even more actively the reaction proceeds with acryle acid and acrolein. Since the interaction of α, β-unsaturated aldehydes and acids with phenylphosphinic esters proceeds much more agitatedly than with trialkylphosphites and is accompanied by a greater self heating, the authors were not in a position to determine the presence of the intermediate product of the Arbuzov regrouping even in an indirect way. The results obtained by the authors showed that the conclusions drawn by A. Ye. Arbuzov on the reactivity of various esters of the trivalent phosphorus with halide alkyls also are valid in other cases of Arbuzov regroupings, in particular for the reaction with C=C-C=O conjugated systems. The constants of the obtained systems are given in a table.

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The Addition of Neutral Esters of Phosphoric and Phosphinic Acids to Conjugated Systems. IV. The Addition of Esters of Phenylphosphinic Acid to α, β -Unsaturated Aldehydes and Acids

79-28-4-20/60

There are 1 table and 3 references, all of which are Soviet.

ASSOCIATION: Kazanskiy khimiko-tekhnologicheskiy institut (Kazan' Institute for Chemical Technology)

SUBMITTED: March 18, 1957

Card 3/3

KAMAY, Gilm

AUTHORS: Kukhtin, V. A., Gil'm Kamay 79-28-5-13/69

TITLE: Addition of the Full Esters of Phosphorous Acid and of Phosphinic Acid to Conjugated Systems (Prisoyedineniye polnykh efirov fosforistoy i phosphinistykh kislot k sopryazhennym sistemam).
V. On the Problem of the Conversion Mechanism of Trialkylphosphites With Conjugated Systems (V. K voprosu o mekhanizme vzaimodeystviya trialkilfosfitov s sopryazhennymi sistemami)

PERIODICAL: Zhurnal Obshchey Khimii, 1958, Vol. 28, Nr 5, pp. 1196-1200 (USSR)

ABSTRACT: In previous reports (refs 1,2) the authors described a new kind of regrouping by Arbuzov, i.e. the action of the group C=C-C-O of conjugated systems on the esters of phosphorous acid and phosphinic acids. These reactions take place according to the general scheme 1. This scheme suggested by the authors demands a previous partial ionization of the reacting molecule of the conjugated system. In connection herewith it could be assumed that the solvents promoting ionization could accelerate the addition reaction of phosphites to the conjugated systems. The experiments on the reaction intensity

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Addition of the Full Esters of Phosphorous Acid and of 79-28-5-13/69
Phosphinic Acid to the Conjugated Systems.
V. On the Problem of the Conversion Mechanism of Trialkyl-
phosphites With Conjugated Systems

of the addition of tributylphosphite to metacrylic acid in various solvents proved this assumption. Under the mentioned experimental conditions the results mentioned in table 1 could be obtained. The experimental data show that the stronger the polar solvent the more intensive the conversion reaction takes place: in this case the solvents, which have a high dielectric constant, accelerate the reaction, whereas the weakly polar solvents slow it down, as compared to the case of the reaction taking place without solvents. Thus the experimental results can serve as proof of the earlier suggested scheme. Just as well the reactions of trialkylphosphites with α,β-unsaturated acids and halogen alkyls were investigated, in which case the assumption by the authors that the phosphite in the first phase had to react predominantly with the α-β-unsaturated acid, and in the second phase, the halogen alkyl with the formed dipolar ion or the intermediate product according to scheme 2, was fully proved. There are 3 tables and 2 Soviet references.

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Addition of the Full Esters of Phosphorous Acid and of Phosphinic Acid to the Conjugated Systems. V. On the Problem of the Conversion Mechanism of Trialkylphosphites With Conjugated Systems.

79-28-5-13/69

ASSOCIATION: Kazanskiy khimiko-tekhnologicheskiy institut (Kazan' Chemical-Technological Institute)

SUBMITTED: April 15, 1957

Card 3/3

Камай Г.Л.

AUTHORS: Kukhtin, V. A., Kamay, Gil'm, Sinchenko, L. A. 20-3-24/59

TITLE: Telomerization of Metacrylic Acid With Trialkylphosphites (Telomerizatsiya metakrilovoy kisloty s trialkilfosfitami).

PERIODICAL: Doklady AN SSSR, 1958, Vol. 118, Nr 3, pp. 505-508 (USSR)

ABSTRACT: The first two mentioned authors proved that (ref. 1) trialkylphosphites under the action α, β-unsaturated aldehydes and acids can be subjected to a regrouping according to Azbuzov. The authors continued research in this line and stated that on certain conditions not one but several molecules of metacrylic acid can be combined with one molecule of trialkylphosphite, so that reaction in this case becomes telomerization. The reaction takes place without catalyst and at room temperature; triethylphosphite must be carefully purified (with sodium) and must have been subjected to fractioned distillation. The amount of the telomer however, also in this case is very small. Therefore a suitable catalyst had to be found. Benzoylperoxide proved to be the best catalyst. Depending on the quantitative ratio between initial component and catalyst telomers of different mean

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molecular weight were formed. All telomers are white powders without significant melting point. They can be softened and carbonized when heated. When heated the telomers are soluble in methanol and acetic acid. The experimental results are collected in table 1. A diagram of the telomerization based on earlier works is given (ref. 1), although also another structure of the telomer is possible, It was not investigated here. In order to prove the diagram suggested an equimolar mixture of triethylphosphite and metacrylic acid was stored at room temperature until triethylphosphite had disappeared completely. In this an intermediate product of the regrouping according to Arbuzov which corresponds to the first stage of reaction was suggested. Only then a 4-fold excess of metacrylic acid plus catalyst was added. An intensive formation of telomers with a good yield set in immediately. This result proves: 1.- The formation of an intermediate product, and 2.- The probability of the telomerization mechanism suggested. Unexplained, however, remains the part of the catalyst as well as that of the mechanism of its influence on telomerization. With the increasing concentration of metacrylic acid the mean molecular

weight of the telomer increases. This is also the case with the increasing concentration of benzoylperoxide. The capability of the intermediate product to enter telomerization makes possible the assumption that the binding P-O is of ion character. From this is deduced a presumable scheme of the structure of this intermediate product.
There are 2 references, 1 of which is Slavic.

ASSOCIATION: Kazan' Chemical and Technological Institute imeni S..M. Kirov, (Kazanskiy khimiko-tekhnologicheskiy institut im. S. M. Kirova).
Kazan' Br.of the Scientific Research Institute for Cinema and Photography (Kazanskiy filial Nauchno-issledovatel'skogo kinofotoinstituta).

PRESENTED: November 13, 1957, by B. A. Arbuzov, Academician

SUBMITTED: June 28, 1957

AVAILABLE: Library of Congress

KAMAY, G.

SOV/153-2-4-25/32

AUTHORS: 5(1,3) Gil'm Kamay, Chadayeva, N. A.

TITLE: On Allyl Esters of Several Acids of Trivalent Arsenic and Antimony, and Attempts of Copolymerizing Them

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1959, Vol 2, Nr 4, pp 601 - 607 (USSR)

ABSTRACT: A report on this paper was given at the All-Union Conference on "Ways of Synthesis of Initial Products for the Production of High Polymers" which took place in Yaroslavl' from September 29 to October 2, 1958. Many unsaturated phosphorous compounds can be polymerized and formed to transparent refractory resins. Thus, these compounds have recently become more and more interesting. Various allyl- and vinyl esters of phosphoric acid (Ref 2) were investigated at the authors' laboratory (see Diagram). The authors aimed at continuing these investigations and investigating the arsenic analoga of the compounds mentioned. Ally esters of acids of trivalent arsenic were prepared as follows: 1) Reaction of allyl alcohol with arsenic trichloride or corresponding acid chlorides of alkyl-arsenious acids in the presence of a base in the ester medium (see Diagram). 2) Reaction of the an

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On Allyl Esters of Several Acids of Trivalent Arsenic and Antimony, and Attempts of Copolymerizing Them SOV/153-2-4-25/32

hydride of arsenious acid or alkyl- or arylarsinic oxide with allyl alcohol in the presence of water-binding agents (see Diagram). 3) Method of transesterification (see Diagram). The allyl esters of acids of trivalent arsenic shown in table 1 were synthesized as an experimental result. They are all colorless, easily hydrolyzable liquids, except for the allyl ester of pyrocatechol-arsenious acid. Moreover, the authors investigated the interaction of acetyl chloride with several allyl esters of arsinic acids. The reaction process depends on the nature of the reaction participants (see Diagram). Two molecules of acetyl chloride (cases 1 and 2 of the diagram) or only one (case 3) may participate in the reaction. Two experimental series were carried out in order to examine the polymerization capacity of the esters mentioned in the title: 1) Heating of the esters by means of benzoyl peroxide at 80° for 10 days. None of the esters investigated showed polymerization capacity. 2) If methyl methacrylate or styrene were added, polymerization took place on heating (Table 2). The esters investigated can form gels in connection with the two substances mentioned at last. Solid copolymers were obtained from esters of ethyl-arsenic-,

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On Allyl Esters of Several Acids of Trivalent Arsenic and Antimony, and Attempts of Copolymerizing Them SOV/153-2-4-25/32

ethylene-glycol arsenious, and α-chloropropylene-glycolarsenious acids. They gradually become turbid in the presence of humidity but are not soluble in water. Table 3 shows the copolymerization results of the esters of allyl esters of phosphorous, arsenious, and antimonious acids. Copolymerization capacity decreases rapidly in the above order. The polymers produced are not refractory in contrast to polymers containing phosphorus. There are 3 tables and 6 references, 4 of which are Soviet.

ASSOCIATION: Khimicheskiy institut Kazanskogo filiala AN SSSR (Chemical Institute of the Kazan' Branch of the Academy of Sciences, USSR)

Card 3/3

AUTHORS: Kukhtin, V. A., Gil'm Kamay, Sinchenko, L. A., Orekhova, K. M. SOV/79-29-2-32/71

TITLE: Affiliation of the Complete Esters of Phosphorous Acid and Phosphinic Acids to Conjugated Systems (Prisoyedineniye polnykh efirov fosforistoy i fosfinistykh kislot k sopryazhennym sistemam). VII. Telomerization of the Methacrylic Acid With Trialkyl Phosphites (VII. Telomerizatsiya metakrilovoy kisloty s trialkilfosfitami)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 2, pp 510-515 (USSR)

ABSTRACT: In continuation of the common reaction of α,β-unsaturated acids and alkyl halides with trialkyl phosphites (Refs 1,2) the authors intended to find the catalyst most suitable for telomerization, to determine the factors which exercise influence upon this reaction and to determine the structure of the telomers obtained. They found that carefully purified triethyl phosphite can telomerize with methacrylic acid also without a catalyst. Temperature does not matter in this connection. The yield is small in this case (Table 1, Experiment 13). However, if a methacrylic acid is used for a while that is not stabilized with hydroquinone, the reaction takes place in

a very violent manner under intense selfheating and with a high yield of telomers (Table 1, Experiment 12). The trialkyl phosphite that is purified only by separation through distillation does not telomerize with a methacrylic acid that was liberated from the inhibitor immediately before the experiment. It was interesting to know the way in which this telomerization would take place in the presence of triethyl amine and sodium methylate tested by R. M. Connel and H. W. Coover (Ref 3) as catalysts. Yet only small yields were offered by these experiments (Table 1, Experiments 1,2). Also the application of alkyl iodides for telomerization did not quite meet expectations. Benzoyl hydrogen peroxide turned out to be the most favourable catalyst for telomerization. In dependence of the molar ratio of the initial components, on the concentration of the catalyst and the phosphite radical telomers with various average molecular weights were obtained in this telomerization (Table 1). According to previous and the present results it may be assumed that the above-mentioned telomerization takes place according to the scheme mentioned in conclusion.

Affiliation of the Complete Esters of Phosphorous Acid and Phosphinic Acids to Conjugated Systems. VII. Telomerization of the Methacrylic Acid With Trialkyl Phosphites SOV/79-29-2-32/71

Thus, the structure of telomers resulting from the telomerization of methacrylic acid with trialkyl phosphites was investigated and a scheme of reaction was suggested in addition. There are 2 tables and 3 references, 2 of which are Soviet.

ASSOCIATION: Kazanskiy khimiko-tekhnologicheskiy institut (Kazan' Institute of Chemical Technology)

SUBMITTED: December 26, 1957

Card 3/3

5 (3)
AUTHORS: Gil'm Kamay, Chernokal'skiy, B. D. SOV/79-29-5-40/75

TITLE: On Some Esters of Dialkyl-arsenious Acids (O nekotorykh efirakh dialkilarsinistykh kislot)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 5, pp 1596-1599 (USSR)

ABSTRACT: Up till now only four representatives of this group of substances were known: methyl-, ethyl-, n-butyl-, and n-octyl ester of the di-n-butyl-arsenious acid, which was first obtained and described by K. I. Kuz'min (Ref 1). For the production of further esters two ways were taken: (a) reaction of dialkyl-arsine-iodide with sodium alcoholates, (b) heating of bis-(dialkyl-arsine)-oxide with alcohols in the presence of calcium chloride as dehydrating agent. The second method gave better results. The reaction of dialkyl-arsine-iodide with sodium alcoholates does not proceed quantitatively, the purification is troublesome, and side reactions take place. The esters obtained are little viscous, colorless liquids. They readily oxidize when exposed to air, and form by hydrolysis the corresponding dialkyl-arsenious acids. The bis-(dialkyl-arsine)-oxides serving as initial products were

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On Some Esters of Dialkyl-arsenious Acids

SOV/79-29-5-40/79

prepared by saponification of dialkyl-arsine-iodides in aqueous sodium hydroxide. Table 2 presents their physical constants. Table 1 gives the physical and analytical data of the resultant esters of dialkyl-arsenious acids. When heated with halogen alkyls in sealed ampoules crystals are precipitated which were not investigated. The experimental describes the reactions performed. There are 2 tables and 8 references, 2 of which are Soviet.

ASSOCIATION: Kazanskiy khimiko-tekhnologicheskiy institut imeni S. M. Kirova (Kazan' Institute of Chemical Technology imeni S. M. Kirov)

SUBMITTED: April 1, 1958

Card 2/2

SOV/20-128-2-21/59

5(2,3)

AUTHORS: Gil'm Kamay, Chernokal'skiy, B. D.

TITLE: Thermal Decomposition of Organic Compounds of Pentavalent Arsenic

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 128, Nr 2, pp 299-301 (USSR)

ABSTRACT: By heating arsenic acid in the presence of tetraethoxysilane up to 220-230°, the ester of arsenous acid is formed (Ref 1). Ya. F. Komissarov with co-workers (Ref 2) proved that the esters of alkyl-arsenic acids isomerized, on heating, to esters of the arsenous acid. The corresponding alcohols were also isolated as reaction products. The thermal decomposition of the oxides of (2-carboxy-ethyl)- and (2-carboxy-2-methyl-ethyl)- diphenyl arsine leads to the formation of the bis-(diphenyl-arsenic) oxide and of carboxylic acid (Ref 3). The authors wanted to investigate the pyrolysis mentioned in the title by the example of the series: $AlkAs(O)(OAlk)_2$, $Alk_2As(O)(OAlk)$ and Alk_3AsO, where Alk=CH_3, C_2H_5, n-C_3H_7, n-C_4H_9. These substances were synthesized by oxidation of the corresponding derivatives of

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Thermal Decomposition of Organic Compounds of Pentavalent Arsenic

trivalent arsenic. In the pyrolysis (Table 1) under atmospheric pressure, the resultant readily boiling products were distilled. Decomposition started at 200-220°. The distillate was then subjected to fractional distillation. The esters of the alkyl-arsenic acids synthesized by oxidation of the esters of the alkyl-arsenic acids by means of selenium dioxide seem to be rather resistant to thermal influence. Table 2 shows the oxidation of the last-mentioned esters by selenium dioxide. Besides the ester, several other products are isolated from the distillate and the resinous residue of the 1st distillation which hitherto had not been observed in the said synthesis: dialkyl-arsenic acids (Nr 2 and 5, Table 2); an alcohol with one radical forming part of the alkoxy group of the initial compound; di-n-butyl ester of the ethyl-arsenic acid. The analogy between some oxidation products of the esters of the dialkyl-arsenic acids and those of the thermal decomposition of the esters of the alkyl-arsenic acids induced the authors to think that a pyrolysis of the esters formed by the oxidation of the dialkyl-arsenic acids is possible at the time of their isolation. The pyrolysis of the n-butyl ester of the methyl-n-

Thermal Decomposition of Organic Compounds of Pentavalent Arsenic

butyl-arsenic acid confirmed this idea since butanol, n-butyl ester of the methyl-n-butyl-arsenic acid were formed; also the presence of a carbonyl compound could be proved. The esters produced (Table 2) of the dialkyl-arsenic acids are viscous liquids with a weak specific odor which are easily saponified by water and atmospheric moisture. The atomic refraction of arsenic in these compounds is equal to 8.19 according to the authors' calculations. Table 3 shows the pyrolysis of the trialkyl-arsenic oxides produced by oxidation of trialkyl arsines by means of H_2O_2. In the cases investigated, the pyrolysis mentioned in the title proceeds at least in 2 directions: $RR'R''AsO \longrightarrow R'R''AsOR$ (A) and $RR'R''AsO \longrightarrow RR'R''As$ (B), where R = alkyl, R' and R" = alkyl or alkoxy group. It seems that the two compounds (A) and (B) are formed by the pyrolysis. The isolation of the pure products is rendered difficult by the near boiling points of these substances. Besides the alcohols mentioned, it is probable that aldehydes are present in the pyrolyzate. The analogies both in the conditions and in the products of the pyrolysis confirm a unified

Thermal Decomposition of Organic Compounds of Pentavalent Arsenic SOV/20-128-2-21/59

reaction mechanism. There are 3 tables and 9 references 5 of which are Soviet.

ASSOCIATION: Kazanskiy khimiko-tekhnologicheskiy institut im. S. M. Kirova (Kazan' Institute of Chemical Technology imeni S. M. Kirov)

PRESENTED: April 23, 1959, by A. Ye. Arbuzov, Academician

SUBMITTED: April 20, 1959

Card 4/4

5(2,3) SOV/20-128-3-30/58

AUTHORS: Kamay, G., Tsivunin, V. S.

TITLE: Some Esters of Ethyl-vinyl and Ethyl-allyl Phosphinic Acids

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 128, Nr 3, pp 543-546 (USSR)

ABSTRACT: The present paper continues the investigations carried out since 1948 in the authors' laboratory concerning the synthesis and polymerization of the unsaturated esters of phosphoric acids. The synthesis of the esters mentioned in the title was carried out in several stages (see Diagram). The interaction of ethyl-dichlorophosphine (Ref 6) with ethylene oxide easily proceeds in the medium of absolute ethyl ether. According to the number of ethylene-oxide molecules involved in the reaction, an acid chloride of β-chloro-ethoxy-ethyl-phosphinous acid, and the di-β-chloro-ethyl ester of ethyl-phosphinous acid are formed. The latter ester is a colorless liquid with a weak phosphine odor. It is stable in distillations, but oxidizes slowly in the air. It reacts violently with sulphur, and under considerable heat formation with cuprous chloride. These two facts suggest the trivalent structure of the phosphorus .

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Some Esters of Ethyl-vinyl and Ethyl-allyl Phosphinic Acids

M. I. Kabachnik and P. A. Rossiyskaya (Ref 7) ascertained that the presence of halogen atoms in the tris-β-chloro-ethyl phosphite at increased temperatures causes an internal regrouping of the ester due to a transition of the phosphorus from the trivalent to the pentavalent structure. As was expected, the isomerization of the di-β-chloro-ethyl ester of ethyl-phosphinous acid to a corresponding ester of ethyl-β-chloro-ethyl-phosphinic acid proceeded easily. Already after heating the ester in boiling ethyl benzene (in nitrogen atmosphere under intensive stirring) for 1 hour, the ester of the trivalent phosphorus compound disappeared: it was isomerized almost completely. The esters mentioned in the title were obtained by an interaction of the acid chloride with corresponding alcohols in the medium of absolute ether in the presence of pyridine. They are colorless, easily movable liquids (except for β-chloro-ethyl ester), mixible with water, and have a weak, but agreeable fruit odor. Their constants are shown in table 2. The esters of ethyl-allyl-phosphinic acid were obtained by Arbuzov's regrouping of corresponding esters of ethyl-phosphinous acid (Refs 8, 9) by allyl bromide. All

Some Esters of Ethyl-vinyl and Ethyl-allyl Phosphinic Acids SOV/20-128-3-30/58

esters of this acid are colorless, easily movable liquids with a weak, but somewhat sharp odor. They are easily mixible with water at room temperature (except for isoamyl ester). Their constants are shown in table 2 (Abstracter's note: misprint, the said constants are shown in the 2nd part of table 1). The authors carried out preliminary polymerization experiments with both types of ester. The results are given in brief. There are 1 table and 9 references, 7 of which are Soviet.

ASSOCIATION: Kazanskiy khimiko-tekhnologicheskiy institut im. S. M. Kirova (Kazan' Institute of Chemical Technology imeni S. M. Kirov)

PRESENTED: May 25, 1959, by A. Ye. Arbuzov, Academician

Card 3/3

KAMAY, GIL'M; CHADAYEVA, N.A.

Furyl esters of some acids of trivalent arsenic. Izv. AN SSSR Otd. khim. nauk no.10:1779-1782 O '60. (MIRA 13:10)

1. Khimicheskiy institut im. A.Ye. Arbuzova Kazanskogo filiala Akademii nauk SSSR.

(Arsenic organic compounds)

KAMAY, Gil'm

S/079/60/030/04/25/080
B001/B016

AUTHORS: Gil'm Kamay, Chernokal'skiy, B. D.

TITLE: Synthesis and Pyrolysis of the Esters of Alkyl Arsinic Acids

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 4, pp. 1176-1180

TEXT: Ya. F. Komissarov and co-workers (Ref. 1) showed that the above esters are isomerized by heating to give the esters of the arsenious acid: $RAs(O)(OR)_2 \longrightarrow As(OR)_3$. In this connection, corresponding alcohols are formed, and a fraction in which the content of trivalent arsenic is higher than in the resultant ester of the arsenious acid. The authors of the present paper extended these reactions to other examples. The esters of alkyl arsinic acids used for this purpose were obtained by oxidation of the corresponding esters of alkyl arsinic acids with selenium dioxide (Refs. 3,4) in anhydrous benzene (Table 1). They are colorless, or slightly yellowish, viscous liquids with specific odor, and are hydrolyzed already by the atmospheric moisture. The pyrolysis of these esters was carried out at atmospheric pressure by heating, and the readily boiling products were distilled off. Decomposition started in the reaction mass

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at 200-220°. The distillate was fractionated in order to separate the individual products. The esters of alkyl arsinic acids synthesized are, apparently, rather stable to thermal effects. On rigorous heating of the diethyl ester of n-propyl arsonic acid, a large portion distilled over without transformation. In order to obtain a more complete conversion of the remaining esters, they were heated in such a way that the temperature of the distilling vapors did not exceed 200°. The corresponding ester of alkyl arsinic acid occurs as the principal product containing arsenic (Table 2). The esters of arsenious acid are formed on pyrolysis of diethyl- and di-n-butyl ester of the n-propyl arsonic acid. The thermal decomposition of the alkyl esters of alkyl arsinic acids was found to yield two products containing arsenic, i.e. the ester of alkyl arsinic acid and trialkyl arsenite. In the reaction, an alcohol is formed with a radical which enters the alkoxy group of the initial ester of alkyl arsinic acid. There is a carbonyl compound in the pyrolyzate of the di-n-butyl ester of methyl arsinic acid, which reacts with 2,4-dinitrophenyl hydrazine. There are 2 figures and 11 references, 7 of which are Soviet.

Synthesis and Pyrolysis of the Esters of Alkyl Arsinic Acids

S/079/60/030/04/25/080
B001/B016

ASSOCIATION: Kazanskiy khimiko-tekhnologicheskiy institut imeni S. M. Kirova (Kazan' Institute of Chemical Technology imeni S. M. Kirov)

SUBMITTED: May 8, 1959

Card 3/3

S/079/60/030/05/28/074
B005/B126

AUTHORS: Gil'm Kamay, Chernokal'skiy, B. D.

TITLE: Some Properties of Esters of Dialkylarsenious Acids

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30. No. 5, pp. 1536-1541

TEXT: The authors have previously (Ref. 1) shown that the relevant trialkylalkoxyarsonium iodide can form on the synthesis of esters of dialkylarsenious acids from dialkylarsenic iodides and sodium alcoholates. Such an arsonium salt could also be synthesized by direct reaction of the n-propylester of diethylarsenious acid with n-propyliodide. The resulting diethyl-n-propyl-n-propoxy-arsonium-iodide is fully dissociated in its ions in an aqueous solution; the anion (I^-) can be quantitatively titrated with silver nitrate solution. The authors also synthesized esters of dialkylarsenic acids by oxidizing the relevant ester of dialkylarsenious acids with selenium dioxide. When the reaction mixture was distilled strong resinification occurred, which is due to pyrolysis. When the distillation is carried out at 13-15 torr, only the initial product is obtained instead of the desired ester. At even lower pressure

(4 torr) the ester of dialkylarsenic acid can be isolated. The yield can be raised if the solvent is distilled off after the oxidation at lower pressure. Apart from the ester, several products form by this synthesis, which does not occur on the similar production of monoalkylarsenic acid esters. Thus the relevant acid always forms as well as the ester, and in some cases also the alcohol with the radical of the alkoxy-group of the initial product. All the products formed in this way are compiled in Table 1. The ester used as initial product, yield, and boiling- or melting point of each product are given. Refractive index and density are also given for liquid products. Since the yield of dialkylarsenic esters on the oxidation of the ester of dialkylarsenious acid with selenium dioxide is small, the authors investigated other oxidation media. Methyl-n-butylarsenic acid formed under the direct action of dry oxygen on the n-propylester of methyl-n-butylarsenious acid. Mercuric oxide can also be used as an oxidation medium. Table 2 gives a survey of the synthesized dialkylarsenic acid esters. The n-butyl esters of diethylarsenic acid and methyl-n-butylarsenic acid and the ethyl esters of di-n-propylarsenic acid and methyl-n-butylarsenic acid were synthesized. The oxidation media used for production, yield,

Some Properties of Esters of Dialkylarsenious Acids

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boiling temperature, refractive index, density, molar refraction, and the atomic refraction of the arsenic are given for each of these esters. The atomic refraction of the arsenic in the synthesized compounds is 8.19 on average. The esters given in Table 2 are colorless liquids with weak odor, and are easily saponified by water and even by atmospheric moisture. All the operations carried out are fully described in the experimental part. There are 2 tables and 8 references: 4 Soviet, 3 English, and 1 German.

ASSOCIATION: Kazanskiy khimiko-tekhnologicheskiy institut (Kazan' Institute of Chemical Technology)

SUBMITTED: May 15, 1959

Card 3/3

.... KAMAY, Gil'm

S/079/60/030/011/006/026
B001/B066

AUTHORS: Gil'm, Kamay and Khisamova, Z. L.

TITLE: Esters of Di-n-propyl Arsinic Acid

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 11, pp. 3611-3614

TEXT: In the present paper, the authors continued their studies of acid esters of trivalent arsenic (Ref.1), and synthesized the hitherto unknown esters of di-n-propyl arsinic acid by the following two methods: a) by reaction of di-n-propyl iodo arsine with sodium alcoholates:

$$(C_3H_7)_2AsI + RONa \longrightarrow (C_3H_7)_2AsOR + NaI ;$$

b) by reaction of bis-di-n-propyl arsine oxide with the corresponding alcohols and glycols at elevated temperature:

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Esters of Di-n-propyl Arsinic Acid

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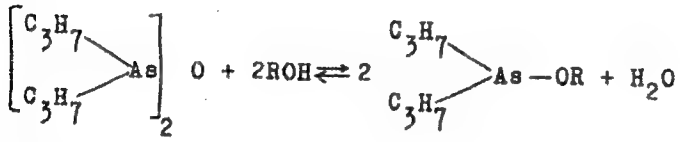

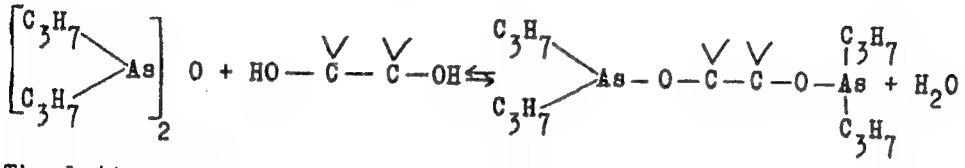

The latter method gives better yields; the former is more complicated since the reaction is not completed, and therefore yields impure end products. The resultant esters of di-n-propyl arsinic acid are given in the table. These colorless, highly mobile esters hydrolyze rather readily to form bis-di-propyl arsine oxide $[(C_3H_7)_2As]_2O$. They react on prolonged standing in sealed tubes with methyl iodide or benzyl bromide, and give crystalline products. By heating the mixtures of these esters and acetic anhydride, the corresponding alkyl ester of acetic acid and an acetyl

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Esters of Di-n-propyl Arsinic Acid

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derivative of di-n-propyl arsinic acid result. Bromination of ethylene glycol ester of di-n-propyl arsinic acid takes place under addition of two bromine atoms per one ester molecule. The addition product could not be obtained in crystal form. Its pyrolysis yielded di-n-propyl bromo arsine. There are 1 table and 1 Soviet reference.

ASSOCIATION: Kazanskiy filial Akademii nauk SSSR (Kazan' Branch of the Academy of Sciences USSR)

SUBMITTED: December 1, 1959

Card 3/3

5.3630

80006

AUTHORS: Tsivunin, V. S., Kamay, Gil'm

S/020/60/131/05/036/069
B011/B117

TITLE: On the Esters of Ethyl-β-chloro-vinyl Phosphinic Acid

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol 131, Nr 5, pp 1113-1116 (USSR)

TEXT: In contradiction to earlier statements (Ref 1), the authors came to the conclusion that from the chloride of ethyl vinyl phosphinic acid, the chloride of ethyl-α,β-dibromo ethyl phosphinic acid results by bromination. It is a product with low stability, and splits off HBr already during the removal of light fractions in vacuo and at 50°. In this way, the chloride of ethyl-β-bromo-vinyl phosphinic acid results (see scheme). The authors provide no answer to the question as to whether structure (I) or (II) is correct. They prefer structure (I) as being more likely. In this case, the halogen atom is bound to the β-carbon atom, since in this case both steric and thermodynamical factors would secure a high stability of the molecule. By a careful study of the chlorination of the chloride of ethyl vinyl phosphinic acid, it was found that in contradiction to facts stated above the chlorination product (chloride of ethyl-α,β-dichloro-ethyl phosphinic acid) was shown to be a stable product which could be distilled and separated in vacuo without decomposition. Nevertheless, the tendency to split off HCl is manifested by a high, nearly quantitative

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On the Esters of Ethyl-β-chloro-vinyl Phosphinic Acid

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yield of the chloride of ethyl-β-chloro-vinyl phosphinic acid, if the chloride of ethyl-α,β-dichloro-ethyl phosphinic acid is catalytically dehydrochlorinated over a mixture of $BaCO_3$ and active carbon at 330-350°. Esters of the ethyl-β-chloro-vinyl phosphinic acid were synthetized by the authors by the usual method. The chlorination of the mentioned acid was more difficult, as was expected. The yield of the chloride of ethyl-α,β,β-trichloro-ethyl phosphinic acid was 22%. The constants of the products obtained are given in table 1. Furthermore, the polymerization of methyl, ethyl and butyl esters of the ethyl-β-chloro-vinyl and of the ethyl ester of the ethyl-β-bromo-vinyl phosphinic acid was studied by the authors at 100-150° and in presence of 2% benzoyl peroxide. After ten days, no increase in viscosity was found. The reason for the polymerization being rendered more difficult has to be attributed, in the opinion of the authors, partly to the additional screening of the double bond by the halogen atom. In contrast to this, the polymerization rate of allyl alcohol of phosphorus-containing acids is increased by the introduction of electronegative groups. The differences became evident when 2% benzoyl peroxide, the dinitrile of 2-azo-bis-isobutyric acid (Paraphor), or diazoamino benzene were used. The allyl ester of ethyl-β-chloro-ethyl phosphinic acid became waxy already at 40° within 30 minutes, while the

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KAMAY, Gilm

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5.3630 2209, 1266, 1287

S/020/60/135/005/029/043
B016/B052

AUTHORS: Tsivunin, V. S., Gil'm Kamay, and Makeyeva, G. K.

TITLE: Derivatives of Ethyl-α-chloro-vinyl and Ethyl-β-chloro-vinyl Phosphinic Acids

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 135, No. 5, pp. 1157-1159

TEXT: The authors report on the determination of the structure of acid chlorides of ethyl-α,β-dihalogen ethyl phosphinic acids. For this purpose they ozonized propyl and isobutyl esters of ethylchloro-vinyl phosphinic acid, and identified the decomposition products by means of dimedone. In both cases, a crystalline product was isolated, which corresponded to the condensation product of dimedone with formaldehyde (melting point, 189.5°C). The authors therefore believed that the halogen in the vinyl radical has an α-position. So far, this has not been proved. The results showed that acid chlorides of ethyl-α-halogen vinyl phosphinic acids are formed by thermal or catalytic dehydrohalogenation of the above-mentioned acid chlorides. The authors also synthesized derivatives of ethyl-β-

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Derivatives of Ethyl-α-chloro-vinyl and Ethyl-β-chloro-vinyl Phosphinic Acids

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halogen vinyl phosphinic acids and compared their physical constants and properties with those of the known derivatives of acid whose halogen is bound to the carbon atom. Contrary to their expectations (according to data by K. N. Anisimov and A. N. Nesmeyanov, Ref. 3), the suspension of ethyl tetrachlorophosphine disappeared from its reaction mixture with butyl-vinyl ether the more quickly, the larger the addition of vinyl ether. It completely dissolved as soon as the reagents reached an equimolar ratio. By distillation (after the reaction medium - absolute benzene - had been distilled off) and treatment in a vacuum, the authors obtained also a fraction corresponding to the acid chloride of ethyl chloro-vinyl phosphinic acid. It was a yellowish, mobile liquid with a somewhat strong smell which fumed when exposed to air, and was decomposed by water. When added to bromine or its solution in chloroform, it showed no visible reaction, although after a few days bromine was decolorized. A product identical with these acids was obtained by reaction of ethyl tetrachlorophosphine with vinyl isopropyl ether. In the presence of pyridine, the ethyl ester of ethyl-β-chlorovinyl phosphinic acid was formed by reaction of the product obtained with ethanol in absolute diethyl ether. From their results and the infrared spectra the authors concluded that the reaction

KAMAY, Gil'm; KHARRASOVA, F.M.

Rate of the reaction between some esters of phosphorus acid and carbon tetrachloride. Izv. vys. ucheb. zav.; khim. i khim. tekh. 4 no. 2:229-231 '61. (MIRA 14:5)

1. Kazanskiy khimiko-tekhnologicheskiy institut im. S.M. Kirova. Kafedra tekhnologii organicheskogo sinteza.
(Phosphorous acid) (Carbon tetrachloride)

KAMAY, GIL'M

GIL'M KAMAY

Aleksandr Mikhailovich Butlerov, the glory and pride of Russian science. Izv.vys.ucheb.zav; khim. i khim.tekh. 4 no.5:699-705 '61. (MIRA 14:11)

(Butlerov, Aleksandr Mikhailovich, 1828-1886)

KAMAY, G.Kh.

A.E.Arbuzov. Izv.Kazan.fil. AN SSSR. Ser.khim.nauk no.6:11-21 '61.
(MIRA 16:5)
(Arbuzov, Aleksandr Ermingel'dovich, 1877-)

KAMAY, Gil'm; CHADAYEVA, N.A.

Preparation of allyl arsenyl chloride. Izv.Kazan.fil. AN SSSR. Ser.khim.nauk no.6:81-83 '61. (MIRA 16:5)
(Arsenious acid)

KUKHTIN, V.A.; KAMAY, Gil'm.

Reactions of α,β-unsaturated acids with trialkyl phosphites. Zhur. ob.khim. 31 no.5:1735-1736 My '61. (MIRA 14:5)
(Phosphorous acid) (Acids, Organic)

KAMAY, Gil'm.; GATILOV, Yu.F.

Asymmetric tertiary arsines. Part 1: Phenylethylalkylarsine and their derivatives. Zhur.ob.khim. 31 no.6:1844-1847 Je '61. (MIRA 14:6)

1. Khimicheskiy institut Kazanskogo filiala AN SSSR.
(Arsine)

GIL'M KAMAY; GATILOV, Yu.F.

Asymmetric tertiary arsines. Part 2: n-Tolylethylalkylarsines and their derivatives. Zhur.ob.khim. 31 no.9:2882-2885 S '61. (MIRA 14:9)

1. Khimicheskiy institut Kazanskogo filiala AN SSSR.
(Arsine)

KAMAY, Gil'm; KHARRASOVA, F.M.; SULTANOVA, R.B.; TUKHVATULLINA, S.Yu.

Action of carbon tetrachloride on alkyl esters of p-chlorophenyl-, p-isopropylphenyl-, and α-naphthylphosphinic acids. Zhur. ob. khim. 31 no. 11:3550-3554 N '61. (MIRA 14:11)

1. Kazanskiy khimiko-tekhnologicheskiy institut imeni S.M. Kirova.

(Phosphinic acid) (Carbon tetrachloride)

KAMAY, Gil'm; CHADAYEVA, N.A.

Some esters of phenylthioarsinic acid. Zhur. ob. khim. 31 no. 11:3554-3556 N '61. (MIRA 14:11)

1. Khimicheskiy institut Kazanskogo filiala AN SSSR.
(Arsinic acid)

KAMAY, Gil'm; GATILOV, Yu.F.

Separation of asymmetric arsonium compounds into optically active antipodes. Dokl. AN SSSR 137 no.1:91-93 Mr-Ap '61. (MIRA 14:2)

1. Khimicheskiy institut Kazanskogo filiala Akademii nauk SSSR.
(Arsonium compounds)

KAMAY, Gil'm; CHADAYEVA, N.A.

β,β,β-Trichlorethyl esters of some acids of trivalent arsenic. Dokl.AN SSSR 138 no.1:123-124 My-Je '61. (MIRA 14:4)

1. Khimicheskiy institut Kazanskogo filiala AN SSSR. Predstavleno akademikom A.Ye.Arbuzovym.
(Arsenic acids)

KAMAY, G.Kh.; KLABUNOVSKIY, Ye.I.; GATILOV, Yu.F.; KHODAKOV, G.S.

Separation of quaternary arsonium compounds into optical antipodes by asymmetric adsorption on natural dissymmetric adsorbents. Dokl. AN SSSR 139 no.5:1112-1113 Ag '61. (MIRA 14:8)

1. Institut organicheskoy khimii AN SSSR, g. Kazan', i Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR. Predstavleno akademikom B.A. Arbuzovym.
(Arsonium compounds) (Adsorption)

KAMAY, G. Kh.; KHARRASOVA, F. M.; SULTANOVA, R. B.; TUKHVATULLINA, S. Yu.

Action of chloral on alkyl esters of p-chlorophenyl-, p-isopropylphenyl-, and α-naphthylphosphinous acids. Izv. vys. ucheb. zav.; khim. i khim. tekh. 5 no.5:759-762 '62. (MIRA 16:1)

1. Kazanskiy khimiko-tekhnologicheskiy institut imeni Kirova, kafedra tekhnologii organicheskogo sinteza.

(Chloral) (Phosphinous acid) (Esters)

KAMAI, Ghilm [Kamay, Gil'm]

Aleksandr Mihailovici Butlerov [Aleksandr Mikhaylovich Butlerov], 1828-1886, pride and glory of Soviet science. Analele chimie 17 no.2:164-171 Ap-Je '62.

KAMAY, Gil'm

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PHASE I BOOK EXPLOITATION SOV/6034

Konferentsiya po khimii i primeneniyu fosfororganicheskikh soyedineniy. 2d, Kazan', 1959.

Khimiya i primeneniye fosfororganicheskikh soyedineniy; trudy (Chemistry and Use of Organophosphorus Compounds; Conference Transactions) Moscow, Izd-vo AN SSSR, 1962. 630 p. Errata slip inserted. 2800 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Kazanskiy filial.

Resp. Ed.: A. Ye. Arbuzov, Academician; Ed. of Publishing House: L. S. Povarov; Tech. Ed.: S. G. Tikhomirova.

PURPOSE: This collection of conference transactions is intended for chemists, process engineers, physiologists, pharmacists, physicians, veterinarians, and agricultural scientists.

COVERAGE: The transactions include the full texts of most of the scientific papers presented at the Second Conference on the Chemistry and Use of

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Chemistry and the Use of Organophosphorus (Cont.) SOV/6034

Organophosphorus Compounds held at Kazan' from 2 Nov through 1 Dec 1959. The material is divided into three sections: Chemistry, containing 67 articles; Physiological Activity of Organophosphorus Compounds, containing 26 articles; and Plant Protection, containing 12 articles. The reports reflect the strong interest of Soviet scientists in the chemistry and application of organophosphorus compounds. References accompany individual reports. Short summaries of some of the listed reports have been made and are given below.

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KAMAY, Gil'm; TSIVUNIN, V.S.; PAPINA, L.A.

Some esters of ethyl-α-bromovinylphosphinic acid. Trudy KKHTI no.30:11-17 '62. (MIRA 16:10)

KAMAY, Gil'm; KHARRASOVA, F.M.; TUKHVATULLINA, S.Yu.

n-Butyl ester of phenyltrichloromethylphosphinic acid. Trudy KKHTI no.30:18-21 '62. (MIRA 16:10)

KAMAY, Gil'm; ZARIPOV, R.K.

α-vinyl alkyl esters of arsenious and phenylarsinous acids.
Trudy KKHTI no.30:77-81 '62. (MIRA 16:10)

KAMAY, G.Kh.; NIKOLAYEVA, A.D.; NIKOLAYEV, V.S.; SAFRONOVA, L.M.; GAYDUKOVICH, N.A.

Synthesis of β-bromo-γ-nitropropylene and study of its nitration with nitrogen dioxide. Trudy KKHTI no.30:116-119 '62.
(MIRA 16:10)

KAMAY,G.Kh.; NIKOLAYEVA, A.D.; NIKOLAYEV, V.S.; KARIMOV, R.G.

Synthesis of α-chloro-γ-nitroisopropyl alcohol from allyl chloride.
Trudy KKHTI no.30:120-124 '62. (MIRA 16:10)

KAMAY, G.Kh.; NIKOLAYEVA, A.D.; NIKOLAYEV, V.S.; SIDOROV, A.

Synthesis of -nitrocrotonyl alcohol. Trudy KKHTI no.30: 125-127 '62. (MIRA 16:10)

KAMAY, Gil'm; MUKMENEV, E.T.

Pentaerythritol phosphite. Trudy KKHTI no.30:296-302 '62.
(MIRA 16:10)

GIL'M KAMAY; MIFTAKHOVA, R.G.

Chlorides and mixed esters of cyclohexyl- and dicyclohexylarsenous acid. Zhur.ob.khim. 32 no.9:2839-2844 S '62. (MIRA 15:9)

1. Kazanskiy khimiko-tekhnologicheskiy institut imeni S.M. Kirova.
(Arsenious acids)